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LEPROSY :

SUMMARY OF RECENT WORK

No. 3.

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LEPROSY.

VIGNE (P.). **Rapport présenté à la IIIe Conférence internationale de la lèpre.**—*Rev. d'Hygiène.* 1924. Mar. Vol. 16. No. 3. pp. 261-269.

This paper deals with the incidence of leprosy in Southern France, where the indigenous focus in the Alpes-Maritimes has greatly decreased from the 98 cases collected by BOINET and EHLERS in 1900 and is now almost extinct. On the other hand, by 1910 59 imported cases had entered the country, chiefly through Marseilles, while during the war at least 300 have been known; these were mainly in coloured soldiers from the colonies, including 173 from Senegal, 34 from Indo-China, 19 from Madagascar and 6 from Morocco; Toulouse has received a few from Spain, but no new cases are known to have arisen from them in France. Of 195 cases examined, 81 were macular, 28 nodular and 23 nerve forms.

L. Rogers.

TRUFFI (M.). **La lebbra in Sicilia.**—*Giorn. Ital. d. Malattie Vener. e d. Pelle.* 1924. Apr. Vol. 65. No. 2. pp. 746-752.

This paper is, in the main, statistical. During the period 1867-1875 PROFETA met with 114 cases of leprosy; in the succeeding six years another 32. FERRARI, for the period 1879-1893, recorded 37 cases, nearly all in the Provinces of Syracuse and Catania. TOMMASOLI collected 70, distributed amongst 27 Communes; of these 43 only were still living when his figures were published. Finally, it has been estimated that between 1867 and 1911 there have been 315 cases in Sicily. A circular letter sent to those practising in the country districts led to the reporting of 36 more, but these figures are not to be regarded as very exact. Recently the Ministry has issued orders for the compulsory notification of cases, but many of the medical men have not sufficient experience to diagnose the disease in its early stages, and, secondly, there is a tendency, as elsewhere, for patients and their relatives to conceal their state. It is probable therefore that there are several cases still unrecognized and unreported.

H. Harold Scott.

MORIN (J.). **La lèpre dans le Djoloff (Sénégal).**—*Bull. Soc. Path. Exot.* 1924. July 9. Vol. 17. No. 7. pp. 592-596. With 1 map in text. [1 ref.]

Among 60,000 to 70,000 people of two tribes 40 lepers are known, which is an under-statement. For these it is advisable to form a leper village, with separate quarters for the two affected tribes, under a European doctor, but financial difficulties will be encountered.

L. R.

DEKESTER (M.). **Observations nouvelles de lèpre dans la région de Fez (Maroc). Faits précis de contagion. Considérations prophylactiques.**—*Bull. Soc. Path. Exot.* 1924. July 9. Vol. 17. No. 7. pp. 597-605.

During 13 months up to June, 1924, 39 cases of leprosy have been added to the 104 observed since 1920 in the Fez region of Morocco,

nearly all with advanced lesions of several years' duration. Examples are given of a conjugal infection and one of three children of a first marriage infected by their leprous step-mother, the abundance of biting parasites favouring infection.

L. R.

ARAÚJO (Heraclides Cesar de Souza). **Frequencia e Prophylaxia da Lepra nas Guyanas e em Trinidad.**—Reprinted from *Supplemento do "Boletim Sanitario."* 1923. Dec. No. 5. 129 pp. With 60 figs. & 8 maps. 1924. Rio de Janeiro: Off. Graph. da Inspectoria de Demographia Sanitaria.

This work comprises an account of a visit to the Guianas and Trinidad, made in 1922 by the Director of the Public Health Service of Pará, to study the question of the prophylaxis of leprosy with a view to adopting new measures in the State over which he has sanitary control. The general health conditions of the countries visited have already been reported in "Brazil Médico."

Starting with French Guiana, Dr. Araujo found here no reliable statistics of the number of lepers. According to one statement there were 300, according to another, a rash generalization, there were thousands. From his own observations, necessarily incomplete, the author estimates at least 600, or 1.5 per cent. of the population. A small leprosarium was established in 1828 by the owner of an estate to accommodate those among her slaves who were infected. Seven years later the Government transferred all lepers there. Dr. STÉVENÉL, a former head of the leprosarium, was greatly averse to sequestration of lepers, saying that sanatoria should be special hospitals merely and not places for segregation. In 1891 rules were laid down for dealing with leprous patients, but these were not kept and the record was made that "Regulations neither have given nor can give any results." These views did much harm in retarding useful measures; as the author states: "The Sanitary Laws and Regulations are good, the execution of them is bad." Neither notification nor segregation was compulsory, so that in 1922 there were only 71 patients in the Acarouany Leper Asylum; 57 were males, 14 females. 17 were of the nodular type, 33 anaesthetic, and 21 mixed. There is a second small leprosarium in the island of St. Louis for infected prisoners. Here there are 30 huts with two beds each. In this asylum there were 57 patients, 52 of whom were French and 5 Arabs from Algeria. Enquiry revealed the fact that all had acquired the disease in Guiana. Their lot is a sad one; there are a few small gardens, but no land for agriculture and no distractions; they are poorly fed and are apparently untreated.

After much search the author has succeeded in obtaining copies of all Laws, Decrees, and Regulations referring to the prophylaxis of leprosy, and these are transcribed in an appendix to the account of each Colony and to them very pertinent remarks are added. Thus, orders were promulgated that all lepers who desired it should be admitted to the leprosarium, but, as Dr. Araujo points out, only a small proportion apply, whereas segregation should be compulsory. In his own words: "The sanitary organization at Cayenne resulting from the decrees appears to be very good, but these have not been

carried out although twelve years have elapsed " since their promulgation. In short, as stated by JEANSELME, they are rules " pour épater " and not for execution.

Dutch Guiana was next visited, and three leper asylums were inspected, namely, Gerardus Majella (for Catholics), in Paramaribo, Groot Chatillon (non-sectarian) and Bethesda (for Protestants) in the interior, on the right bank of the Surinam River, inaugurated in 1885, 1887 and 1889 respectively. The two latter are of the agricultural colony type. Groot Chatillon is the official asylum, receiving patients irrespective of their religion, and marriage is allowed. The number of lepers in the whole Colony is believed to be about 1,500, but accurate statistics are not kept. The disease is said to have been first introduced by Africans, and later by Hindu and Chinese coolies. In the three institutions in 1921 there were 353 patients. All are under the control of the Chief of the Sanitary Department of the Colony. All cases notified by medical men, all who voluntarily present themselves, and all discovered by the police and the sanitary authorities are brought before a Board of five medical men for examination. As soon as the diagnosis is verified the patient is registered and he is sent to one of the asylums or isolated at home, while suspected cases are kept under observation and re-examined later. The leprosaria are described and photographs are given showing some of the houses, their situation and the accommodation. The patients are well cared for; all who are able work in the fields, the gardens, the offices, the carpenters' shops, in the laundry or in the sewing-room. There is a concert room and an orchestra, and ground for tennis and football. Treatment by chaulmoogra oil, by injection and by mouth, is carried out regularly and systematically.

Proceeding to British Guiana he visited the Mahaica leprosarium, by which he appears to have been particularly struck and of which he gives a detailed description. This has been in existence for 60 years, during which time, he was informed, one doctor and two nurses had contracted the disease. On the day of his visit there were 257 patients, of whom 164 were male; during the ensuing month 12 more were admitted. Of the 269 there were 113 of the nodular type, 147 of the maculo-anaesthetic, and 9 mixed. The author was informed that there were no unsegregated lepers and that this figure constituted the total for the Colony; but, he naively states, on the day he embarked for Trinidad, among the persons accompanying the Bishop of Georgetown on board was a girl affected with nodular leprosy who was " passing to and fro quite freely in absolute violation of Law 15 of 1905." As in the case of the other Colonies, he gives a transcription (in Portuguese) of the Laws and Regulations, but adds, in the case of British Guiana, that he thinks they are too stringent and doubts whether they are carried out.

Lastly he journeyed to Trinidad and visited the Leper Asylum of Cocorita and the Lazaropolis of Chacachacare in course of erection. Of the former is given a brief account of its history since its foundation in 1845 and a general description of the buildings, their arrangement and cost of upkeep. The sexes are rigidly separated, " but nevertheless some births are registered." He had been told that this asylum was very old and had many defects, and he was agreeably surprised, but apparently thought the expenses were great, for he states: " We should be indeed happy if each Brazilian State had an establishment equal to this and could spend annually 800,000 dollars in helping the lepers." There is a prison connected with the asylum in which are kept not

only those sentenced to imprisonment by the Courts, but also any lepers in the asylum who commit infringements of discipline. These are under the Administrator-General of Prisons without any intervention by the asylum superintendent, except as regards diet. There were, when the author visited the asylum, 540 inmates disposed in 18 large pavilions, 12 for males, 6 for females. Children of either sex under 8 years of age were given one of the pavilions for women. He saw four or five children below the age of 6 years who were leprous, and one of the nuns who accompanied him, and who had worked there for more than 20 years, informed him that a child born there had shown signs of leprosy when two months old. He remarks that in this institution he saw worse cases of facial deformity than he had seen in any other country. Dr. Araujo greatly deplores the fact that in an establishment so well administered as the asylum of Cocorita, with so many patients isolated, of all races and origins, such abundance of material should be allowed to waste. No research was done, no clinical records even were kept, search for the bacilli was only carried out in doubtful cases, a statement from two medical men that a person is leprous being sufficient for isolation. Incidentally, he mentions that he saw a case of lupus vulgaris isolated as a leper amongst the inmates. To his questions as to which was the predominating form clinically, what percentage of each form revealed the presence of Hansen's bacillus, what were the results of the Wassermann test, there was no reply obtainable. No systematic treatment by any of the new methods is carried out, he affirms, but he nevertheless mentions that the mortality is remarkably low, only 8.5 per cent., as compared with 20 at Tocunduba. During 1920 there were 128 admissions to the asylum; of these two were doubtful, and one was not suffering from leprosy at all. Of the remainder 37 were of the nodular type, 86 anaesthetic, and 2 mixed. The total number of cases in Trinidad and Tobago is estimated to be between 700 and 800. The Regulations applicable to lepers and asylums in this Colony are transcribed without comment.

The author sums up the results of his investigations, detailed in this important record, in a final series of conclusions from which the following are abstracted:—

1. Segregation should be compulsory.
2. Agricultural colonies should be established at a distance from the centres of population, preferably on islands.
3. Limited self-administration should be allowed, with the Governor as the sole intermediary between themselves and the constituted authorities.
4. Cohabitation of married lepers should be permitted.
5. Children of leprous parents should be removed immediately after birth and education provided for up to the age of 14 years.
6. Lepers should be provided with every comfort, distractions, and even luxuries as far as possible, and should be given work to do in the garden, fields, offices, and at trades. They are far happier at work.
7. The establishment of hospitals within the leper colonies and of laboratories for diagnosis and research are essential.
8. The administrative section should be separated from the patients' area, and in the latter there should be small separate dwellings for two, four, or six patients each.

The book is a most helpful record, giving the unbiased opinion of a recognized authority on this subject relative to the conditions as they exist in countries other than his own, with useful hints as to points in which they can be improved or altered with advantage.

H. Harold Scott.

- i. ARAUJO (H. C. de Souza). **A prophylaxia da lepra no Pará.**—*Brazil-Medico*. 1924. July 26. Year 38. Vol. 2. No. 4. pp. 48-50.
- ii. ——. **A lepra no Estado do Pará. Estatística de 30 mezes.**—*Sciencia Medica*. Rio de Janeiro, 1924. July 31. Vol. 2. No. 7. pp. 366-369.

i. There are in the State of Pará large numbers of lepers. Prophylactic work was begun on June 28th, 1921, with the founding of a dispensary at Belém. In 6 months 600 lepers were registered there at the end of the first year 1,359, and in June, 1924, there were 2,200, the total population being 120,000, approximately 18 per mille for Belém and 3·2 for the State. There is now a large "Lazaropolis" in Prata at which patients are received for treatment; it also contains a crèche of 20 beds for children born in Prata; there is a school for leprous children and a well-developed colony system for work and administration. Husbands and wives are allowed to live together when one or other is leprous, the healthy being examined every fortnight. The medical treatment adopted is that of HEISER—a mixture of chaulmoogra and camphorated oil in equal parts with the addition of 3 per cent. resorcin. Intramuscular injections in doses of 1-3 cc. are given twice weekly, if well tolerated.

ii. Covers much the same ground, though slight variations in figures indicate that the two papers were written at different dates.

H. Harold Scott.

- DE ALMEIDA (Ribeiro). **O problema da lepra.**—*Bol. Soc. Med. Cirurg. de S. Paulo*. Brazil. 1923-24. Nov.-Dec.-Jan.-Feb. Vol. 6. 3rd Ser. Nos. 9-12. pp. 131-132.

In São Paulo the number of lepers is given as 1 per mille, attributed in part to immigration from neighbouring States. The "Model Leprosarium" in S. Paulo, instituted by Dr. Rodrigues ALVES, is insufficient to deal with all the cases. In Pará, however, the latest statistics show 1 per cent. of the population as leprous, but, writes the author, this is looked upon with indifference. It is suggested that several leprosaria of the S. Paulo type be erected at various places in the State and that notification and isolation of cases should be made compulsory.

H. Harold Scott.

- BARRERA (F. de P.) & CHAVARRIA (A. Peña). **The Acute Exanthem of Leprosy.**—*Bull. Johns Hopkins Hospital*. 1924. May. Vol. 35. No. 399. pp. 147-158. With 3 plates & 4 charts. [13 refs.]

The authors have had the advantage of studying the occurrence of acute febrile exacerbations in leprosy in the three leper colonies of Colombia, with 6,500 lepers. They think these symptoms have not been sufficiently described by other authors, and prefer to call them "the acute exanthem of leprosy." They occur mostly in adult life, especially during physiological changes in women and in young married lepers, and may also be brought on by alcoholic excess or by chaulmoogra oil treatment. The fever reaches its height in the first three days and subsides by lysis after six to twelve, or rarely 20 days. The well-known appearances in these attacks and the accompanying breaking up of the bacilli in the lesions are next described, and the improvement, or a change from the chronic nodular to the maculo-anaesthetic form, following the reaction is mentioned, the changes being

regarded as a defensive reaction against the invading bacilli; and they are inclined to agree with ROGERS that the benefit following treatment by chaulmoogra oil preparations is not due to direct action of the drug on the bacilli, but rather to some substance formed in the body under the influence of the oil, such as lipase ferment as suggested by him.

L. R.

POWELL (A.). **Hypertrophy of the Male Nipple in Leprosy.**—*Brit. Jl. Dermat. & Syph.* 1924. May. Vol. 36. No. 5. (No. 427.) p. 203. With 3 figs.

The writer recurs to this subject, and records that out of a total of 385 male lepers both nipples were enlarged in 280 and one in 10 more, and both in 3 of 7 female children below puberty, but in the child-bearing period the test is unreliable. Sections of the nipple show increased fibrous tissue, but seldom any lepra bacilli.

L. R.

LITTLE (E. G. Graham). **Case of Macular Leprosy.**—*Proc. Roy. Soc. Med.* (Sect. of Dermat.) 1924. June. Vol. 17. No. 8. p. 59. (Discussion pp. 60–61.)

The interest of this case resides in the patient having lived in England since 1896, before which she was in Calcutta for ten years. The incubation period appears to have been very long as the first signs appeared in 1917.

L. R.

PINEDA (Eloy V.). [In English & Spanish.] **Pathological Survey of the Causes of Death in Lepers at Culion. Estudio analítico de las causas de muerte en los leprosos de Culion.**—*Jl. Philippine Islands Med. Assoc.* 1924. May. Vol. 4. No. 5. In English pp. 169–178. [15 refs.] In Spanish pp. 197–200.

Since March 1922, 300 post mortems have been made at Culion on lepers dying in the colony, and the causes of death classified, the principal causes being tuberculosis 24 per cent., nephritis 16·3 per cent., bronchopneumonia 9·3 per cent., dilated heart 7·6 per cent., malaria 5·6 per cent., endocarditis 5 per cent., amoebiasis 3·3 per cent., lobar pneumonia and undetermined each 3 per cent., gangrene and leprosy each 2·3 per cent., and the remainder a variety of diseases each causing less than 2 per cent. These figures are in agreement with other records, in showing a high mortality from tuberculosis and nephritis respectively, but differ widely from those of MCCOY in Hawaii who, mainly apparently on clinical grounds, attributed about 75 per cent. directly to leprosy and only 3·5 per cent. to tuberculosis. BEVAN RAKE is quoted as having performed 90 autopsies in the Trinidad Leper asylums and found about 30 per cent. of the deaths to be due to tuberculosis, while in another series of 78 he found nephritis in 29·4 per cent. At Culion practically one-fourth of the lepers died of tuberculosis, and the treatment with ethyl esters of chaulmoogra oil was found to be injurious in 31 per cent. of such complicated cases. Nephritis is predisposed to by the damage to the skin and secondary infections in leprosy, while ethyl ester chaulmoograte was found to have an irritant effect on the kidneys, about 30 per cent. of the urines sent to the laboratory being positive for albumen early in the treatment, while after a half to two years' treatment of 1,120 specimens examined 95 per cent. showed albumen and 88 per cent. contained casts. Post mortem the majority

of the nephritis cases were of the parenchymatous class, and no lepra bacilli were ever found in smears of the kidneys. Neoplasms caused 1·6 per cent. and beriberi 1·3 per cent. of the deaths.

L. R.

LLOYD (R. B.), MUIR (E.) & MITRA (G. C.). **The Effect of Antisyphilitic Treatment on the Wassermann Reaction in Leprosy.**—*Indian Jl. Med. Res.* 1924. July. Vol. 12. No. 1. pp. 213–220. [9 refs.]

In 16 cases of anaesthetic leprosy with positive Wassermann reactions treated with antisyphilitic remedies the reaction was favourably influenced in 12, or 75 per cent., the primary nerve cases being most improved, so the authors consider that all Wassermann positive nerve cases should receive antisyphilitic treatment. Of 46 nodular and mixed leprosy cases in 24 the reaction was similarly favourably influenced, but in the remaining 22 it was unchanged by antisyphilitic treatment, so in this case they advise such treatment only if there is a history of syphilis complicating the leprosy as well as a positive Wassermann. On the other hand, they consider that the high proportion of 62 per cent. of positive Wassermans they found in leper children, against 17 per cent. in controls, indicates that in them the high proportion of plus reactions cannot be attributed to complicating syphilis.

L. R.

TAYLOR (J.) & MALONE (R. H.). **Complement Fixation in Leprosy with "Defatted" *B. tuberculosis* Antigen.**—*Indian Jl. Med. Res.* 1924. July. Vol. 12. No. 1. pp. 127–137. [11 refs.]

Antigens made from various acid-fast bacilli have been tried without success in the diagnosis of leprosy by the complement fixation test, a summary of which trials is first given, but the authors have not found any record of their use after removal of the lipoids. This they have done by means of DREYER's method of defatting tubercle bacilli by formalin and acetone, a fine grey powder being obtained, keeping well in a desiccator. A suspension of this is standardized by having an opacity equal to that of a 1–2,000 suspension of barium sulphate in 1 per cent. sodium citrate, all but very fine particles of the bacillary powder being removed by a hand centrifuge. After determining with known leper and non-leper sera the antigenic and anti-complementary power of this antigen, it is titrated in quantities of 2 to 12 drops in a system containing a total of 25 drops, which was never found to be anti-complementary. The sera of 100 lepers in the Rangoon Leper Asylum have been tested with this antigen, the fixation of 2 or more minimal haemolytic doses of complement only being regarded as a positive reaction, and all 37 nodular leprosy cases, all but 2 of 50 nerve cases, or 96 per cent., and 12 of 13, or 92 per cent., of mixed cases gave positive results, making 97 per cent. of the total cases. On the other hand, 14 non-leper, non-tubercular and Wassermann negative control sera, as well as 23 Wassermann-positive sera, gave negative results. The great majority of the leper asylum cases had had the disease for three years and longer, and the authors have not yet been able to test a sufficient number of early cases to decide the diagnostic value of the new test in them, but the high proportion of plus reactions in advanced nerve cases lead them to hope it will also be of value in early cases, in which case an important advance will accrue. They also tested the sera of 30 cases of tuberculosis, but obtained positive reactions in 20 per cent. only.

L. R.

WADE (H. W.) & LARA (C. B.). [In English & Spanish.] **A Plea for the Early Recognition of Leprosy, with Notes on Diagnosis and Methods.** *La necesidad del diagnostico precoz de la lepra con apuntes sobre diagnostico y metodos.*—*Jl. Philippine Islands Med. Assoc.* 1924. Apr. Vol. 4. No. 4. In English, pp. 132-140. In Spanish, pp. 159-162.

The failure of segregation in the Philippines to reduce the incidence of leprosy as rapidly as had been hoped is largely attributable to the great difficulty in finding and isolating the cases in their earlier stages. Illustrative examples are quoted of the early stages not having been recognized, and of the disease being allowed to reach a stage far less amenable to treatment before a positive diagnosis was made. The training of officers of the health service, physicians, medical students, presidents of sanitary divisions, nurses, constabulary officers and school teachers in the early signs of leprosy is, therefore, necessary, and all doubtful cases should be sent up for verification by expert medical officers, especial attention being paid to the more infectious cutaneous form of the disease, as the early nerve cases are less dangerous to the community. The early lesions are next described, the reddish brown macules and the loss of sensation to light pricks with a sharp needle and to touch being emphasized, and the loss of pigmentation in patches, while epistaxis should lead to an examination of the nasal mucous membrane for lesions. All doubtful cases should be re-examined every three months to detect the earliest definite signs. In making bacteriological examinations of suspected lesions, several smears from different lesions should be made by an actual cut into the deeper layers of the skin, and scrapings free from any material amount of blood taken, the slides dried in the air and sent to a laboratory for report. The writers conclude: "It is felt that if an anti-leprosy campaign is intensified along these lines it will be decidedly more effective." Illustrated pamphlets should be used for educative purposes.

L. R.

- i. TRAVERS (E. A. O.). **The Treatment of Leprosy at the Leper Asylum, Kuala Lumpur, Selangor, F.M.S.**—*Far Eastern Assoc. Trop. Med. Trans. Fifth Biennial Congress, Singapore.* 1923. pp. 352-358.
- ii. WHEATLEY (A. H.). **The Treatment of Leprosy as carried out at the Leper Asylum, Pulau Jerejak.** *Ibid.* pp. 359-362.
- iii. WADE (H. W.). **Leprosy Work in the Philippines.**—*Ibid.* pp. 363-377. [5 refs.]
- iv. VAN DRIEL (B. M.). **Affections of the Eye in Leprosy.**—*Ibid.* pp. 378-391. [34 refs.]
- v. GUERRERO (Luis E.). **The Present Status of the Anti-Leprosy Campaign in the Philippine Islands.**—*Ibid.* pp. 392-405.
- vi. TRAVERS (E. A. O.). **The Segregation of Lepers.**—*Ibid.* pp. 406-410.

i. *Vide ante* p. 514.

ii. Wheatley deals with treatment at the Pulau Jerejak leper asylum in Penang. In 1914 Heiser's intramuscular injections of chaulmoogra oil were used, and later Rogers' sodium gynocardate A and

hydnocarpate intravenously, or a combination of the latter one part and sodium soyate two parts, all in 3 per cent. solution; and Muir's E.C.C.O. mixture intramuscularly and daily as a spray for the nasal mucous membrane. Reactions were followed by improvement, a succession of slight reactions best maintaining progress; a change of drug is tried when the condition becomes stationary, small doses, stopped if reactions occur, being used in eye and laryngeal complications. "With the above lines of treatment the majority of cases show signs of improvement," and notes of three parallel cases are given.

iii. Wade, of the Culion Colony, first deals with the segregation question, and points out that the compulsory isolation was intensely unpopular and that two-thirds of the leper colonists live in small houses built by themselves. This makes efficient treatment difficult, but it is not to be denied that in our present state of knowledge all cases should be segregated as early as possible, and that the frequent ill-informed agitation does harm. The limitation of financial resources prevents an ideal plan being carried out, one-third of the Health Service appropriations being already spent on leprosy work. Recent treatment in the colony is then dealt with. (See this *Bulletin*, ante p. 177.)

iv. Van Driel deals with eye affections in leprosy in Sumatra, as seen in examination of 250 lepers in the Asylum near Deli, mostly far advanced cases in Chinese, amongst whom syphilis is common, and 350 Bataks, including many early cases in a race seldom infected with syphilis in an asylum at 1,000 feet elevation; at a third asylum nearly 500 more were seen; yet he found only 9 blind patients, and only 7 due to leprosy, or 0.5 per cent. of nearly 1,300 examined. The most important lesions met with in the eye itself, after excluding those due to other diseases, were the following. The cornea frequently shows ulcers and opacities, but he thinks very few of these are leprotic in nature and he never found actual lepromata on the cornea, but a superficial punctate keratitis was found in 3 to 4.3 per cent. of cases, usually very mild and likely to be overlooked unless examined by focal illumination after instillation of cocaine and fluorescein. More frequent and important are the well-known iritis and iridocyclitis, 79 cases, or 22 per cent., being seen in one of the Batak asylums where syphilis was rare. The bacillus he thinks gains access through the blood stream, as both eyes are frequently attacked at once, this condition being the most frequent cause of blindness in lepers.

v. Guerrero deals with the present status of the anti-leprosy campaign in the Philippine Islands on the basis of figures supplied by the Health Service. From the opening of the Culion Colony in June 1906 up to May 1923, 14,832 lepers had been sent there, and 444 more are now in the San Lazaro Hospital at Manilla, making a total of 15,276 collected in 17 years. Only 5,808 now remain, 9,706 having succumbed to the disease, with the exception of a few escaped or released. During the last two five-yearly periods the reduction of admissions has been 24.8 and 8.7 per cent. respectively, while the four more heavily infected provinces show reductions between 1911-15 of 26.5, 15.5, 49.6 and 58.1 per cent., but the writer does not admit these figures as showing "a period of frank decline." During 1921 and 1922 of 1,343 lepers interned the majority, or 804, were cases of up to three years' duration, showing that new cases are arising, and the persistence of the disease is attributed to the forcible deportation to a distant island, causing concealment of cases, and to the system of segregation. The

average duration of the disease of four years when discovered is sufficient to enable new infections to have occurred, especially among the more susceptible young persons, 40·8 per cent. of recent admissions being under 25 years of age. He therefore advocates the establishment of sanatoria-hospitals at central points within visiting reach of friends and relations of the inmates, and the registration and periodical examination of all contacts with lepers so as to detect early cases amenable to treatment. The separation of the children born to lepers from their parents is imperative, but is still not carried out in the leper colony.

vi. Travers urges that the *method* of segregation is of vital importance to success, it being essential to furnish conditions of greater comfort and happiness than in the homes of the lepers, in order to attract them voluntarily, and to permit the visits of relations and friends under careful control. A leper institution should have ample good land for cultivation with only ordinary fencing, and not be within five miles of a town or two from a considerable village. Cheap temporary wards and material for building their own houses should be supplied, with a small hospital for helpless cases. At Kuala Lumpur some fifty such houses have been built by the patients at their own cost; they perform all the work of the colony, except treatment and clerical work, and grow their own fruit and vegetables. A daily visit of an European medical superintendent is necessary. Very similar conditions have proved successful in attracting the lepers at Lao Simmino, in Sumatra, under Dr. VAN DRIEL.

L. R.

BASSETT-SMITH (Percy W.). **The Campaign against Leprosy.**—*World's Health*. 1924. July. Vol. 5. No. 7. pp. 208–210.

The writer deals with the campaign against leprosy of the British Empire Leprosy Relief Association, giving recently published figures indicating that about 300,000 of the world's estimated 2,000,000 lepers are in British territories. To deal with these it is proposed to establish clinics at all hospitals in the infected areas, where the methods of treatment, which have resulted in many cases of permanent cure, as reported by MUIR in Calcutta, may be generally applied to early cases, with good hope of rendering them uninfected at a low cost. Further research should result in still more effective drugs being discovered.

L. R.

MCDANIEL (F. L.). **Report of a Death occurring during Treatment for Leprosy with Chaulmoogra Oil Derivatives.**—*U.S. Nav. Med. Bull.* 1924. May. Vol. 20. No. 5. pp. 594–596.

In a leper colony at St. Croix a male negro in an advanced state of nodular leprosy with laryngeal complication had several severe reactions after 1 and 2 cc. doses of ethyl chaulmoogrates from Honolulu, and also suffered from bronchitic and asthma-like attacks. In one of these he died with signs of laryngeal oedema, but no necropsy was obtained. It is stated that the records of the case are "none too full and no definite conclusions can be drawn therefrom."

L. R.

AOKI (T.), KAWAMURA (M.), KAMIKAWA (Y.) & FUKAMACHI (T.). **On the Treatment of Leprosy by the Intravenous Injection with Derivatives of Gynocard Oil.**—*Japan Jl. Dermat. & Urol.* 1924. Apr. Vol. 24. No. 4. In Japanese, pp. 364–398. With 2 plates & 10 figs. [141 refs.] [English Summary, pp. 33–43.]

These workers discuss recent treatments of leprosy, and point out that intravenous injections are less painful and more exact and rapid in their action, the sodium preparations being also soluble and free from risk of embolus formation. They record numerous experiments with these various preparations in guineapigs and rabbits. They found antileprol (ethyl chaulmoograte) and hydnocardin more toxic and irritating, especially to the lungs, than the sodium salts, all the 17 cases treated with ethyl esters suffering from severe cough. They therefore selected sodium preparations of chaulmoogra oil, especially 1 per cent. leprol solution, for intravenous injections in man at 3 and 4 day intervals; of 25 patients 2 were much improved and 7 slightly improved on intravenous injections, and of 43 on intramuscular doses 3 were much improved and 7 slightly improved.

L. R.

PESTONJEE (R.), NICHOLLS (Lucius) & FELIX (J. E.). **The Treatment of Leprosy in Ceylon.**—*Ceylon Jl. Science.* (Section D. Med. Science.) 1924. June 4. Vol. 1. Pt. 1. pp. 41–46. [1 ref.]

The writers have worked in the Ceylon Leper Asylum, where they class the 489 lepers as: (1) Progressive nodular and mixed, 146; (2) Progressive anaesthetic, 4; (3) Nodular and mixed stationary for six or more months, 144; (4) Anaesthetic, stationary for six or more months with irremediable destruction of nerves, 56; and (5) Chronics resident for ten or more years with no active lesions for many years, 139; and they recognize that the last two classes, or 40 per cent. of the total, cannot be expected to improve under any treatment. They point out that: "The great majority of segregated lepers are suffering from the effect of the past active processes of the disease, such as contractures, lost digits, destroyed nerves and extensive disfigurement, and from these effects no recovery is possible." They agree with MUIR that the tendency in anaesthetic leprosy is towards complete arrest of the disease, but in Ceylon the earlier stages of this type are rarely segregated. Mixed leprosy cases are more severe and generally die from the disease within ten years. Two years ago 32 nodular cases, many of them extensively affected, were selected for treatment with ethyl chaulmoograte in Muir's E.C.C.O. mixture. At the end of this time 10 had improved, 16 had fresh lesions in the course of the treatment and showed no general improvement, while 6 had died, "the injections having been followed in many cases by a definite shrinkage or even disappearance of the nodules." During the last six months 46 earlier cases have been treated, with improvement in 19, no general improvement in 26, and one death. In two, most of the signs have disappeared. They conclude that recovery cannot be expected in the majority of the class of cases seen in leper asylums, and that treatment must be continued for several years.

L. R.

MUIR (E.). **Is Leprosy Curable?**—*Indian Med. Gaz.* 1924. June. Vol. 59. No. 6. pp. 297–298.

The writer analyses his results at the leprosy out-dispensary of the Calcutta School of Tropical Medicine in 203 cases treated for from

3 to over 24 months—80 of them for under 6 months—classing them as follows : “ ‘ A ’ represents nerve cases which have been diagnosed from the presence of anaesthesia and other nerve symptoms, but in which the bacteriological examination was negative for lepra bacilli. ‘ B ’ represents those cases in which the bacteriological examination was positive. A₁ represents primary nerve cases and A₂ secondary nerve cases. B₁ includes early bacteriologically positive cases, B₂ those of a more advanced degree, and B₃ cases with great lepromatous thickening of the skin and very large numbers of lepra bacilli.”

TABLE OF 203 DISPENSARY CASES THAT HAVE PERSISTED WITH
TREATMENT UP TO DATE, OR TO A RELATIVE CURE.
Length of Treatment in Months.

	1- 3	4- 6	7- 9	10- 12	13- 15	16- 18	19- 21	22- 24	Over 24	Total.
A1 { All signs of active disease gone ..	1	4	4	7	3	6	3	2	2	32
A1 { Still signs remaining ..	13	5	2	9	2	3	2	—	—	36
A2 { All signs of active disease gone ..	—	—	—	—	—	—	—	—	—	—
A2 { Still signs remaining ..	5	5	3	1	1	1	2	1	—	19
B1 { All signs of active disease gone ..	—	—	1	4	1	1	—	1	—	8
B1 { Still signs remaining ..	10	4	3	2	3	1	—	—	—	23
B2 { All signs of active disease gone ..	—	—	—	1	—	1	1	—	—	3
B2 { Still signs remaining ..	21	6	5	8	6	6	3	3	10	68
B3 { All signs of active disease gone ..	—	—	—	—	—	—	—	—	—	—
B3 { Still signs remaining ..	5	1	1	1	6	—	—	—	—	14
Total	55	25	19	33	22	19	11	7	12	203

A1=Primary nerve cases. A2=Secondary nerve cases coming on after B2 and B3.
B1=Bacteriologically positive cases of 1st degree.
B2= " " " 2nd "
B3= " " " 3rd "

Of the total cases 43 had lost all signs of leprosy for from three months to three years ; all but five of those had been treated for six months and upwards, so that of the 123 in that category 38 or 31 per cent. had cleared up ; 27 were primary nerve cases, and the remaining 11 the first and second degrees of nodular cases. On the other hand, none of the secondary maimed nerve cases or of the extreme third degree of nodular cases had completely recovered, and he mentions that he has known the treatment wrongly discredited in some leper asylums because it failed to clear up mutilated cases with lost fingers and toes, of which he observes : “ Many of such cases are no more suffering from leprosy than are pock-marked people suffering from smallpox. The disease has died out and has only left scars.” In the primary nerve cases treated for a year or more 16 out of 23 were freed from all signs of the disease, and this favourable proportion increases steadily as the treatment progresses, while the same holds good to a more limited extent with B₁ cases, that is early skin and nodular ones. He therefore holds that “ the table shows A₁ and B₁ cases can be almost invariably freed from all active signs of the disease, and we have in our hands a method of dealing with the disease which only needs to be efficiently applied to stamp out leprosy.” For this purpose it is essential to have (1) sufficient dispensaries run by trained

doctors who have studied the disease, (2) diagnosis if possible in the A₁ and B₁ stage, and (3) treatment on the improved lines he has laid down.

L. R.

MCCANTS (J. M.). **Leprosy in the Hawaiian Islands.**—*U.S. Nav. Med. Bull.* 1924. June. Vol. 20. No. 6. pp. 705–713. [4 refs.]

The writer reviews treatment in Hawaii after consultation with the local medical authorities. The vast majority of cases are in the Hawaiian or part Hawaiian population, who are heavy drinkers, while youth and early adult life are most affected. All suspected lepers are examined by a board of five physicians, including two bacteriologists, four of whom must agree in the diagnosis, but many lepers now come voluntarily for the sake of the present treatment, in which they have great faith; the milder cases are treated at Kahili hospital near Honolulu, and the more serious ones are sent to the Molokai colony. A standard tonic containing iron, arsenious acid, and strychnine is given in addition to ethyl chaulmoogrates, especially in nerve cases. "The recently discovered chaulmoogra-oil derivatives appear to be a specific in leprosy." The mixed ethyl esters of the entire fatty acid series of chaulmoogra oil plus 1 per cent. iodine by intramuscular injection is regarded as the best treatment, its continuous use having led to the following results: (1) Practically all early cases show marked improvement up to an apparent cure. (2) Many advanced ones show improvement. (3) About a third of all cases are sufficiently improved to be paroled; that is, an apparent cure. (4) Of 264 paroled since 1912, 40 returned with a recurrence and 22 have died from other causes. The organisms continuously disappear from the lesions. "It is believed that early detection of lepers and thorough treatment will effect a cure."

L. R.

OGILVIE (D. C.). i. [**Report of the Fiji Leper Asylum at Makogai.**]
ii. **Some Observations on Leprosy.**—*Fiji Ann. Med. Report for the Year ending 31st December, 1923.* pp. 24–27.

On 1st January 1923 there were 266 lepers present at Makogai. During the year the admissions were 62, deaths 18, discharged unconditionally 4, discharged on parole 17, remaining December 31st 289, an increase of 23. The lepers worked on the farm and at the manufacture of soap. In the course of treatment over 7,000 injections were given of various drugs; moogrol and chaulmoogra oil intravenously were of benefit in some only; tartar emetic intravenously caused unpleasant fever and pain without doing any good; urotropine is valuable in cutting short the reactionary fever and swelling and also the pains of nerve leprosy, proved very effective in a case of acute nephritis, and always induces strong diuresis, the routine injection being 10–15 grains in 4–6 cc. distilled water twice a week. Of hypodermic and intramuscular remedies he found sodium morrhuate the most effective and easily absorbed, and sodium hydnocarpate better than the gynocardate. In five cases lepra bacilli obtained from nodules and defatted by Dreyer's method were injected, with improvement in three only. Tuberculosis was the most serious complication, and hookworm infections require treatment with carbon tetrachloride.

L. R.

GONZAGA (Gavião). **Aplicação do enteroantígeno no tratamento da lepra.—Ensaio da vaccinothérapie.** (Nota prévia.) [The Use of Intestinal Antigens in Leprosy. Vaccine Therapy.]—*Brazil-Medico*. 1924. May 17. Year 38. Vol. 1. No. 20. pp. 280-281. With 4 figs.

Having obtained good results in cases of psoriasis and chronic eczema from injections of autogenous entero-vaccines the author tried similar methods in 38 cases of leprosy. He relates in detail two cases, aged 25 and 45 years respectively. Both had extensively disseminated patches and some ulcerated lepromata. The first patient felt so much better that he returned to work and ceased treatment after 23 injections; the second, who had suffered from the disease since 1910, received 47 injections between August 1922 and January 1923. He, too, was greatly benefited, the maculae disappeared, the tubercles became smaller and the ulcers cicatrized. This improvement had been maintained when he was seen again in March 1924. In both patients, however, the bacilli persisted in the nasal mucosa.

H. Harold Scott.

BEUKERS (C. M.). **Thymolinjecties bij Lepra.**—*Geneesk. Tijdschr. v. Nederl.-Indië*. 1924. Vol. 64. No. 2. pp. 283-284.

Beukers recommends for the thymol treatment, suggested by Moehamad HAMZAH [this *Bulletin*, ante, p. 182], the following prescription: thymol 9, camphor 3, cod liver oil 21 parts, 0.5 cc. to be injected intramuscularly every day. There is no pain and little infiltration.

W. J. Bais.

GOMES (José Maria). **Tratamento da lepra. Um caso de cura aparente.**—*Bol. Soc. Med. e Cirurg. de S. Paulo*. Brazil. 1923-24. Nov.-Dec.-Jan.-Feb. Vol. 6. 3rd Ser. Nos. 9-12. pp. 140-141. And *Ann. Paulist. Med. e Cirurg.* 1924. Apr. Year 12. Vol. 15. No. 4. pp. 77-79.

A brief account of a girl of 12 years who had shown symptoms of leprosy early in 1922. In January, 1923, there were extensive maculo-anaesthetic patches on both legs with some thickening of the skin. She was dull and apathetic and tired by the smallest effort. Leprosy bacilli were found in smears of the nasal mucosa and in blood from the maculae. Injections of tarakthyl (0.5 cc. and increasing to 1 cc.) were well tolerated and there was no febrile reaction. Improvement was rapid; the patches diminished, sensibility returned and the patient lost her apathy. By October the lesions had disappeared and repeated examinations of the nasal mucosa and of blood from the old leprous sites failed to reveal any leprosy bacilli.

H. Harold Scott.

SARRAUT (A.). **Circulaire du ministre des colonies au sujet de la prophylaxie et du traitement de la lèpre.**—*Ann. de Méd. et de Pharm. Colon.* 1924. Jan.-Feb.-Mar.-Apr. Vol. 22. No. 1. pp. 121-133.

Attention is called to the good results of the new treatment of leprosy obtained in several of the French Colonies. It has led to an increase in the number of lepers coming to dispensaries for advice, and

has permitted early cases, with little or no infection, to be treated either as out-patients with domiciliary care and registration, or in special wards in hospitals. Particular care should be taken to prevent susceptible children coming into contact with lepers. The ethyl esters can be made from the oil of *Hydnocarpus anthelmintica* of China as well as from true chaulmoogra oil. Medical Research Institutes should have sections for the study of leprosy treatment. Cases should be classified as (1) Closed cases not giving off lepra bacilli and not contagious, to be treated in out-patient dispensaries, or if living too far away in hospitals; (2) open and contagious, to be isolated until the lesions are healed; and (3) mutilated and infirm cases requiring to be placed in asylums. The French Colonies, in a native population of 56 millions, have 80,000 to 100,000 lepers, making the disease an important problem, but with our present knowledge it is not rash to hope that if the campaign is carried out with the desired vigour, within ten years the amount of leprosy infection will be so greatly reduced that the plague may be virtually vanquished.

L. R.

PUXEDDU (E.). **La velocita di sedimentazione degli eritrociti nella lepra.**—*Riforma Med.* 1924. June 2. Vol. 40. No. 22. pp. 507-509. [8 refs.]

The velocity of sedimentation (V.S.) of red cells has been suggested as a means of distinguishing gastric carcinoma from simple ulcer, the rate being rapid in the former and about normal in the latter. The rate is increased also in malaria, tuberculosis and syphilis. The author has applied a similar test to leprosy. The method preferred is that of LINZENMEYER, the blood being received into a tube containing the anticoagulant, sodium citrate, potassium oxalate, or sodium fluoride, and the time being noted for the corpuscles to fall to a fixed point marked on the tube. In three cases of leprosy the sedimentation time varied between 60 and 90 minutes, the normal being over 7 hours. In leprosy complicated with malaria this period was still further reduced to between 50 and 80 minutes. By using the red cells of the patients and plasma from normal subjects, and *vice versa*, he showed that the increased rapidity is mainly due to the plasma. The cells of the leprosy patients sedimented in normal plasma in 4 hours or a little over, whereas normal cells in the plasma of leprosy patients sedimented in 70-90 minutes.

H. Harold Scott.

VALVERDE (Belmiro). **Transmissibilidade da lepra.**—*Brazil-Medico.* 1924. Apr. 26. Year 38. Vol. 1. No. 17. pp. 233-236. [3 refs.]

——. **Contribuição para o estudo do contagio e da transmissibilidade da lepra.**—*Rev. Med.-Cirurg. do Brazil.* 1924. July. Vol. 32. No. 7. pp. 355-363. [3 refs.]

In these papers the author, mainly by discussion of the case of leprosy in a lad of 16 years who had never resided out of Paris (reported by Professor JEANSELME to the Academy of Medicine in December 1923), controverts the statement attributed to LUTZ that this disease is conveyed only by mosquitoes, *Culex* and *Stegomyia*.

H. Harold Scott.



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